

SPACE LIFE SCIENCES SYMPOSIUM (A1)
Behaviour, Performance and Psychosocial Issues in Space (1)

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COUNTERMEASURES: NON-NUTRITIVE BENEFITS OF GROWING AND TENDING PLANTS
DURING THE 500-DAY CHAMBER SIMULATION

Abstract

Life in space adversely impacts the psychological, social, and physiological well-being of humans living in space. As a consequence, maintaining psychological and behavioral health of humans during long-duration space missions is critical for the future success of space exploration and colonization. There is some evidence that indicates that growing, viewing, and/or tending plants may be an effective countermeasures for some of the negative consequences of long-duration space missions and we have begun to explore the potential efficacy of plants as countermeasures to these consequences. A series of studies is being conducted designed to answer a number of research questions, including: Are there non-nutritive benefits to growing and/or tending plants? What specific benefits are derived from growing and/or tending plants? If they are detected, how can these benefits be maximized? What characteristics of people predict who will respond most favorably to plant life? What are the characteristics of plants that maximizes their beneficial utility? We propose to present some of the preliminary results of these studies specifically, in the context of the 500-day chamber study to be conducted at IBMP in Moscow. This will include outcome data related to: Baseline Self Report. Participants experiences with plants and nature, along with perceptions of the utility of plants during long-duration missions, will be reported. Self Reported Plant Activity. Every 30-days during the chamber study, participants will be asked to report on their perceptions of the impact of the plants on themselves and the crew. Greenhouse Monitoring. Use of the greenhouse in the chamber will be collected using a curtain designed and attached to the greenhouse modules that records the frequency and duration activity with plants. Mood. The Luscher Color Test will be used every two weeks to monitor mood states and changes. These will be administered every two weeks. Cognitive Function. Several brief assessments of cognitive function will also be collected., including: a calculation assessment. These will be administered every two weeks. Stress. Throughout the chamber study, saliva and urine samples will be collected and assessed for stress-hormone (cortisone) levels. This will provide a physiological measure of overall stress.